AMENDMENTS TO THE SPECIFICATION

The disclosure was objected to because of various informalities therein. The following amendments are respectfully submitted to cure such objections.

Please replace the paragraph that begins on page 1 at line 18 and ends on Page 2 at line 3 with the following paragraph:

In order to prevent damage to power semiconductor devices, the maximum operating temperature of the devices should not be exceeded. It is accordingly important to monitor the temperature of power semiconductor devices so that they can be shut down or the current limited through them if the maximum operating temperature is ~~to~~ reached in order to prevent damages to the devices. The present invention relates to a method and apparatus for remotely and indirectly determining the temperature of the power semiconductor device, in particular, a power MOSFET by sensing the ON drain-source resistance, i.e., R_{DSON} and thus the voltage between drain and source of the power MOSFET device.

Please replace the paragraph that begins on page 4 at line 18 and ends at line 20 with the following paragraph:

The resistor ~~RDG~~ R_{DG} is external to the integrated circuit of which the ~~MOSFET 10~~ device 10, the transistors 15 and 17, amplifiers 19 and 50 and the current mirror 30,40 are preferably internal components.

Please replace the paragraph that begins on page 5 at line 1 and ends at line 7 with the following paragraph:

The circuit of Fig. 1 operates as follows. As the temperature of ~~MOSFET 10~~ device 10 increases, the drain-source voltage also increases. This is shown in the graph of Fig. 1A which shows that V_{DS} increases with current as well as temperature. The maximum temperature of operation for the device shown is 160°C. Above 160°C, the graph is shown cross-hatched because this is an area of operation in which the device may be damaged. Accordingly, it is desired to maintain the operation of device 10 at a temperature below 160°C.

Please replace the paragraph that begins on page 5 at line 12 and ends at line 21 with the following paragraph:

Looking to Fig. 1B, ~~Since~~ it is apparent that R_{DSON} increases with temperature, ~~as shown in Fig. 1B, and s.~~ I_R equals the current mirror (30,40) ratio multiplied by I_S (which equals the current mirror ratio multiplied by the MOSFET (15,17) ratio multiplied by ILOAD) ~~which~~ and is equal to a constant because both the mirror ratio of the current mirror 30,40 and the MOSFET

ratio between transistors 15 and 17 as well as ILOAD are constants~~, therefore VR,~~. Therefore, V_R, the voltage across resistor R, is substantially constant. There will thus be a temperature above which V_{DS} is greater than ~~VR~~ V_R. When V_{DS} exceeds ~~VR~~ V_R, the voltage at the inverting input of comparator 50 will drop below the voltage at the non-inverting input, and the operational amplifier 50 will be triggered to output the OTP signal, thus indicating that an overtemperature condition exists.

Please replace the paragraph that begins on page 6 at line 14 and ends at line 23 with the following paragraph:

Fig. 2 shows a second embodiment which uses a simpler circuit. The power ~~MOSFET 10~~ device 10 includes main cell 10A and sense cell 10B. Sense cell 10B is coupled to a resistor ~~RT~~ R_T to a common point with the source of cell 10A. This source connection is coupled to a load 20 in the manner shown. A comparator 50' has one input coupled to the source terminal of the sense cell 10B and the other input coupled to the output of a resistor voltage divider. In particular, the inverting terminal is coupled to the source terminal of the sense cell 10B. The non-inverting terminal of comparator 50' is coupled across the resistor voltage divider coupled between drain and source comprising resistors R1 and R2. In addition, a short circuit current comparator 70 may be provided coupled across resistor ~~RT~~ R_T.